UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/791,734	03/04/2004	Naoki Watanabe	1213.43573X00	5300

20457	7590	10/27/2005

ANTONELLI, TERRY, STOUT & KRAUS, LLP
1300 NORTH SEVENTEENTH STREET
SUITE 1800
ARLINGTON, VA 22209-3873

EXAMINER
MOORE, PATRICK M

ART UNIT	PAPER NUMBER
2188	

DATE MAILED: 10/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	10/791,734	WATANABE, NAOKI
	Examiner	Art Unit	
	Patrick M. Moore	2188	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 March 2004*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) _____ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All b)☐ Some * c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date *03/24/2005*.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____ .

DETAILED ACTION

1.   Claims 1-13 have been examined.

Claim Objections

2.   Claim 3 is objected to under 37 CFR 1.75(c), as being of improper dependent

form for failing to further limit the subject matter of a previous claim. Applicant is

required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper

dependent form, or rewrite the claim(s) in independent form. Furthermore, Claim 3

appears to be an identical representation of Claim 1, Lines 9-11. Appropriate correction

is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of
> making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the
> art to which it pertains, or with which it is most nearly connected, to make and use the same and shall
> set forth the best mode contemplated by the inventor of carrying out his invention.

3.   Claim 12 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply

with the enablement requirement. The claim(s) contains subject matter, which was not

described in the specification in such a way as to enable one skilled in the art to which it

pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 12 discloses, "data ... are discarded when an error is not found in the set route

during said route verification" in Lines 2-4. As described in the Specification (¶183 on

Page 45), "when the number of errors exceeds the prescribed number, the new storage

subsystem 103b discards the written data..." which describes the claimed disclosure of

Claim 11. However, the language of the Specification and Claim 11, including

references to Figure 18, do not illustrate "data... discarded when an error is not found".

In order to provide a more complete examination on the merits, Examiner assumes

Claim 12 will be cancelled, but appropriate correction is required.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly
claiming the subject matter which the applicant regards as his invention.

4.   Claims 1-13 are rejected under 35 U.S.C. 112, second paragraph, as being

indefinite for failing to particularly point out and distinctly claim the subject matter which

applicant regards as the invention.

a.   Claim 1 recites the limitation "the host computer" in Line 11. There is

insufficient antecedent basis for this limitation in the claim because more than

one host computer is disclosed.

b.   Claims 2-8 and 10 recite the limitation "said host computer" throughout

each claim, respectively. There is insufficient antecedent basis for this limitation

in the claims because more than one host computer is disclosed in the preceding

claims.

c.   Claims 6 and 7 recite the limitation "said data-migration phase" in Lines 2

and 4-5, respectively. There is insufficient antecedent basis for this limitation in

the claims.

d.   Claim 8 recites the limitation "said storage subsystem" in Lines 2 and 9.

There is insufficient antecedent basis for this limitation in the claim.

e.   Claim 9 recites the limitation "route verification by which whether a route

set in said route-changing phase is correct is verified is performed" in Lines 2-3.

Claim's language fails to clearly disclose Applicant's invention or further describe the intended subject matter. As is, Examiner cannot interpret Applicant's "route verification" process.

f.   Claims 11 and 12 recite the limitations "the data updated during said route verification" in Lines 2 for both claims, "the state" in Lines 4 and 5, respectively and "the one before the route change" in Lines 4-5 and 5-6, respectively. There is insufficient antecedent basis for each of these limitations in the claims.

g.   Claim 13 recites the limitation "said host computer" in Lines 14-15, 18, 22 and 26. There is insufficient antecedent basis for this limitation in the claim.

h.   Claim 13 recites the limitation "said route-changed host computer" in Lines 14 and 18 and "said route-unchanged host computer" in Lines 23 and 25. There is insufficient antecedent basis for these limitations, but Examiner assumes Applicant is referring to "route-changed host computers" and "route-unchanged host computers" disclosed in Lines 9 and 10, respectively. In each instance, correcting these limitations from "host computer" to "host computers" would overcome this rejection.

Appropriate corrections are required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the

applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5.   Claims 1-8 and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by

Nagasawa et al (US Patent Application Publication # 2003/0145169).

a.   As for Claim 1, Nagasawa et al. discloses a method of migrating data from

an old storage subsystem to a new storage subsystem in a data processing

system which comprises host computers and storage subsystems (¶0014, ¶0015

and Figure 10, #10a, 10b, 11 and 13); wherein there is provided a route-

changing phase before migration of the data from the old storage subsystem to

the new storage subsystem (¶0013 and Figure 2, #5c-5h), wherein, in said route-

changing phase, each host computer can access both the old and new storage

subsystems (¶0013 and Figure 2, #5e and #50), and wherein said new storage

subsystem reads data from the old storage subsystem in response to a read

request from a host computer and sends the data to the host computer, and

writes data into the old storage subsystem in response to a write request from a

host computer (¶0018, ¶0049 and Figure 3, #104). For the remainder of this

Office Action, Examiner understands claimed "route changing phase" as having

been anticipated by Nagasawa et al. in Figure 2, #5c-5h.

b.   As for Claim 2, Nagasawa et al. further discloses wherein said new

storage subsystem writes data into said old storage subsystem in response to a

write request from said host computer in said route-changing phase and informs

said host computer of completion of the processing after ascertaining the data-

writing processing (¶0018, ¶0049, ¶0052 and Figure #104). Nagasawa et al.

defines the term "access" as referring to read and/or write commands in ¶0061

and ¶0063 and generally includes a response from the storage subsystem to the

requesting host, as described in ¶0095 and ¶0096. Such terminology is

consistent with that as known to one of ordinary skill in the art.

c.   As for Claim 3, Nagasawa et al. discloses that said new storage

subsystem reads data from the old storage subsystem in response to a read

request from a host computer and sends the data to the host computer (¶0018,

¶0049 and Figure 3, #104)

d.   As for Claim 4, Nagasawa et al. discloses a phase before migration

processing provided before said route-changing phase in which a route is set

such that access from said host computer to said new storage subsystem is

prohibited and access from said host computer to said old storage subsystem is

allowed (¶0048, Figure 2, #5a and Figure 3, #101).

e.   As for Claim 5, Nagasawa et al. discloses a data-migration phase

provided after said route-changing phase in which a route is set such that access

from said host computer to said old storage subsystem is prohibited and access

to said new storage subsystem is allowed (¶0058 and Figure 3, #106).

f.   As for Claim 6, Nagasawa et al. discloses in said data-migration phase,

said new storage subsystem reads data from said new storage subsystem and

sends the data to said host computer when the read request from said host

computer is directed to a data-migration area (¶0062 and Figure 4, #202 and

207), and wherein said new storage subsystem reads data from said old storage

subsystem and sends the data to said host computer when the read request from

said host computer is directed to a data-unmigrated area (¶0061 and Figure 4,

#202, 203, 205 and 207).

g.   As for Claim 7, Nagasawa et al. discloses that a route is set such that

access from said host computer to said old storage subsystem is prohibited and

access to said new storage subsystem is allowed even after completion of said

data-migration phase (¶0058 and Figure 3, #109).

h.   As for Claim 8, Nagasawa et al. discloses an access route to said storage

subsystem that is set by at least one of the manners of changing a form of

connection among said host computer, said old storage subsystem and said new

storage subsystem (¶0052 and Figure 2, #5f), using access restriction by a

network connecting said host computer, said old storage subsystem and said

new storage subsystem (¶0087-0088), and using access restriction by said

storage subsystem (¶0045 and Figure 1, #111). Nagasawa et al.'s disclosed

connection form change, between a host and old storage subsystem, replaces

direct access via the first access path (Figure 1, #21) with indirect access

requiring the second (Figure 1, #20') and third access (Figure 1, #30). Access

restriction by a network is performed by the disclosed path switching device

(Figure 10, #111) and the new storage subsystem (Figure 1, #11) restricts

access with its path replacement controller (Figure 1, #111), which is responsible

for relaying access requests from the host (Figure 1, #10) to the old storage

subsystem (Figure 1, #13).

i.   As for Claim 13, Nagasawa et al. discloses a method of migrating data

from an old storage subsystem to a new storage subsystem in a data processing

system which comprises a plurality of host computers and storage subsystems

connected to said plurality of host computers (¶0015, ¶0087 and Figure 10, #10a,

10b, 11 and 13); wherein there is provided a route-changing phase before

migration of the data from the old storage subsystem to the new storage

subsystem (¶0013, ¶0087 and Figure 2, #5c-5h), wherein, in said route-changing

phase, said plurality of host computers are route-changed host computers

accessing said new storage subsystem and route-unchanged host computers

accessing said old storage subsystem (¶0049 and ¶0087-0088), wherein said

new storage subsystem reads data from said old storage subsystem in response

to a read request from said route-changed host computer and sends the data to

said host computer, wherein said new storage subsystem writes data into said

old storage subsystem in response to a write request from said route-changed

host computer and informs said host computer of completion of processing after

ascertaining the data-writing processing (¶0049 and ¶0091), wherein said old

storage subsystem reads data and sends the data to said host computer in

response to a read request from said route-unchanged host computer, and

wherein said old storage subsystem writes data in response to a write request

from said route-unchanged host computer and informs said host computer of

completion of processing after ascertaining the data-writing processing (¶0087

and ¶0089). Nagasawa et al. further explains that route-unchanged hosts may

only access the old storage subsystem using routes 20a/b connected to 20c or

21a/b connected to 21c as depicted in Figure 10. Additionally, route-changed

hosts may only access the new storage subsystem using routes 20a/b connected

to 20c' or 21a/b connected to 21c' as depicted in Figure 10. As previously

demonstrated, "access" by a host to a storage subsystem is defined by

Nagasawa et al. as a read/write command from a host to a storage subsystem

and a response by the subsystem to the host.

Conclusion

The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure. Yanai et al. (US Patent # 6,502,205) and Ofek (US Patent #

6,044,444) disclose embodiments of a data migration method that allows a plurality of

hosts to be simultaneously connected to a plurality of storage subsystems, but fail to

particularly point out uninterrupted operation during a route-changing phase.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Patrick M. Moore whose telephone number is (571) 272-

1239. The examiner can normally be reached on M-F 8:30AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Mano Padmanabahn can be reached on (571) 272-4210. The fax phone

number for the organization where this application or proceeding is assigned is 571-

273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

Patrick M. Moore
Examiner
Art Unit 2188

PMM

GARY PORTKA
PRIMARY EXAMINER